REMARKS

Claims 36-55 are pending and not amended. All claims have been rejected on obviousness grounds. In response, a declaration, results of a comparison test and arguments are presented. Reconsideration and allowance are solicited.

Rejections under 35 U.S.C. 103

The main issue in this case is whether the pending product by process claims are unobvious in view of a first document that describes a heat releasing fiber (JP 06240064A) and a second document that describes a filler of two materials for textile articles (GG2000440A). Applicants have amended all claims, converting them into a product by process format. In the last office action, the Examiner has argued that the physical characteristics of a product made by a unique product by process method must not "be the same as or obvious from a product of the prior art" for patentability (citing Thorpe). The Examiner has suggested, on page 5 of the office action, "an evidentiary submission showing that a humid environment is usually used to handle such a fiber, whereby "such a fiber is understood to be the claimed first and second fibers of the present invention" and more preferably, "allow for a visual comparison of the claimed product by process to the product of the prior art that does not employ Applicant's manufacturing methodology."

In response, applicants submit a declaration from Mr. Kasai from Hasetora Spinning Co., Ltd., which has experience with textile manufacture and also with the claimed product. Mr. Kasai's company normally manufactures textiles by exposing the fiber material to humidities of at least 70 percent relative humidity. However, for the claimed product, a special lower humidity atmosphere is required and used for manufacture. In a direct comparison of manufacture at i) normal 70% humidity versus that at ii) lower relative humidity of 55% or below, it is clearly seen that the normal condition generates a product that is very different and in fact commercially very undesirable. The lower humidity provides/maintains the synthetic fiber at a low humidity in order to obtain the product for preferred embodiment recited in claims 36-45.

Appendix 1 is a copy of a statement by Mr. Kasai, in Japanese (page 1) and in English (page 2), averring these facts. In particular, Mr Kasai states that the normal relative humidity in his manufacture of textile is at least 70%. Although not stated here, applicants point out that humidity has important purposes of preventing static electricity, fire, and to maintain a proper friction for machinery. These uses argue against lowering humidity, and lack of motivation to add low humidity to a process. The controlled lower humidity both in the fiber and room, required for the claimed product is unusual and increases the cost of the product. Accordingly, such control is not customary. Likewise, for the wet process manufactured product claimed in claims 46-54, the unusual conditions are not normal in the known art.

Appendix 2 is a summary of a comparison of textile manufactured by the process claimed in claims 36-45, with the same textile manufactured by a process that does not use the first fiber at its inherent minimum moisture content, but instead is at a higher moisture content. Two important parameters of the product: 1) exothermic ability and 2) homogeneity (lumpiness) are significantly changed when a normal manufacturing process is modified by the claimed process. The pictures on page 1 of Appendix 2 show temperature (see vertical scale on left side margin) produced by a non-process product (left side) versus that from a claimed process product (right side). The material made from the claimed process provided a) more uniform temperature results and b) warmer temperature results with more sustained heat (see graph in Appendix 2 page 3). These unexpected results arise from the claimed "inherent minimum moisture content" element for the synthetic fiber of the claimed process. A normal manufacturing process does not preserve this claimed characteristic, and the product differs greatly, both morphologically and in performance as a result. Accordingly the product characteristics derive from the claimed features of the process and the product is unique, and not identical to that made by another process.

Page two of Appendix 2 shows the effect of the claimed process on the texture properties of the claimed product. The top figure on page two shows a material

produced by a factory under normal uncontrolled higher humidity and the bottom figure shows material made by the claimed process. The claimed product by process material is much more homogeneous and in fact the N-38 synthetic fiber and down were hardly distinguishable from each other. These significant differences are caused by the claimed process and yield not only a surprisingly superior feel, which is very important to the commercialization of textile, but also a surprisingly superior evenness and strength of heat properties, which is another greatly important property. The latter is evinced in the evenness and higher temperature of the right hand side studied sample shown in the figures on page 1 of Appendix 2. Page 3 of Appendix 2 further shows a surprising and desirable improved exothermic profile.

The process of manufacturing in wet conditions (as recited in the later claims) also provides these beneficial and unexpected properties. Greater homogeneity and heating properties result, from the process that differs from previous process.

In summary, the claimed product differs in composition/morphology and in performance due to the claimed features. Another process cannot make this product having these characteristics nor this performance.

CONCLUSION

Reconsideration and allowance are requested in view of the amendments and arguments provided herein. If a telephonic conference can help clarify any remaining issues, the Examiner respectfully is requested to contact the undersigned.

Respectfully submitted,

Date: April 15, 2004

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陳述書

長谷虎紡績株式会社の取締役工場長である私、坂井勝治は、プレスサーモ繊維と他繊維との混紡に関して以下の陳述を致します。

弊社では、慣例として、プレスサーモ繊維（Ｎ－３８繊維）とダウンとを平均湿度７０％以上で開繊しておりました。これは、これらの原料を用いた冬物衣料の製造時期における当地での通常の湿度雰囲気であります。しかし、現在はミズノ株式会社の指導により、これらの原料の開繊条件を、温度２５℃以下、湿度５５％以下にコントロールしております。

上記陳述が真実であり正確であることを、ここに宣言致します。

日付: 2004年4月15日　　署名: 坂井勝治
坂井　勝治

EVALUATION OF EXOTHERMIC PROPERTIES IN BREATH THERMO® (N-38)/DOWN BLEND

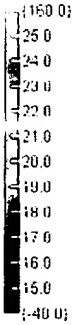
Object Exothermic properties in N-38/down blend varies depending on manners of blending N-38 fiber and down, i.e. under conditioned environment and ambient environment.

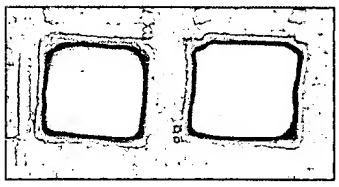
Sample (i) Size: 20x20 cm
Weight: 5 g
Composition: N-38 fiber 40%, down 60%
Manner of mixing: Under ambient environment (temperature: 25 deg. C, humidity 70-80%), N-38 and down were mixed in a mixer (a machine for filling down in sleeping bags). The mixing operation was conducted twice.

Sample (ii) Size: 20x20 cm
Weight: 5 g
Composition: N-38 fiber 40%, down 60%
Manner of mixing: Under a conditioned environment (temperature: 25 deg. C, humidity 50%), N-38 and down were mixed in a mixer (a machine for filling down in sleeping bags). The mixing operation was conducted twice.

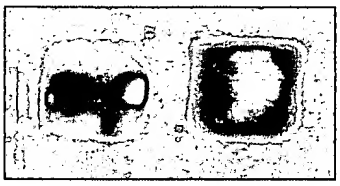
Test method After the samples were treated to absolute dryness, they were placed in a environment of 20 deg. C and 90% humidity and allowed to generate heat. Change of temperature in these

Results

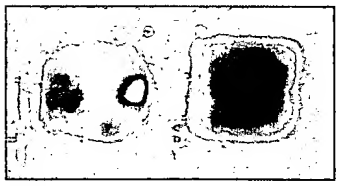




0 min



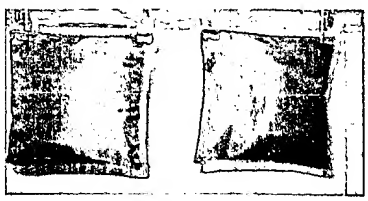
5 min



10 min

30 min

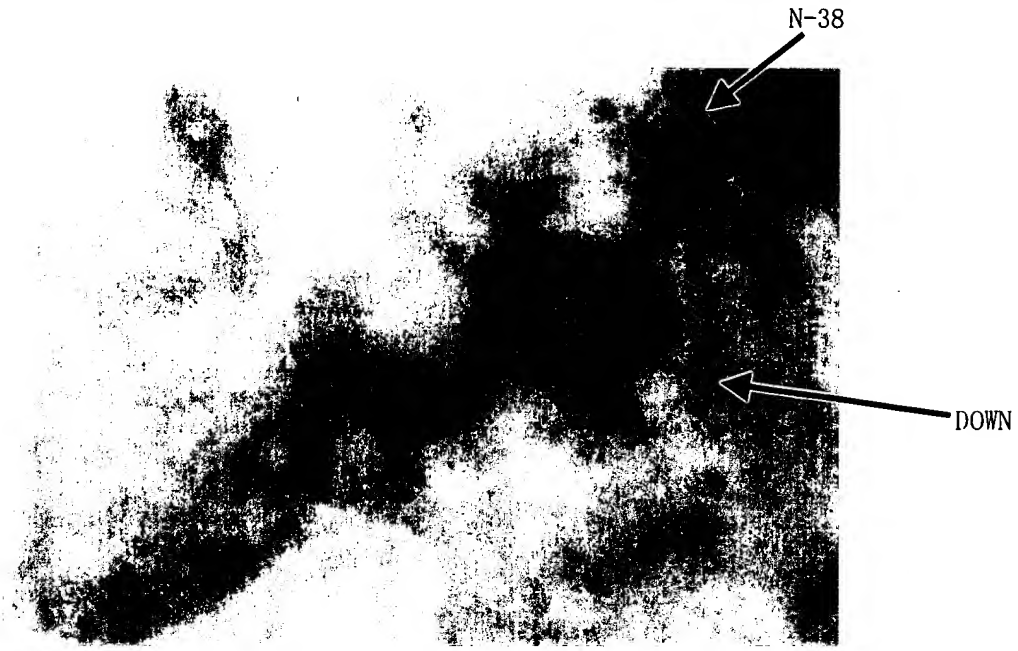
Test state



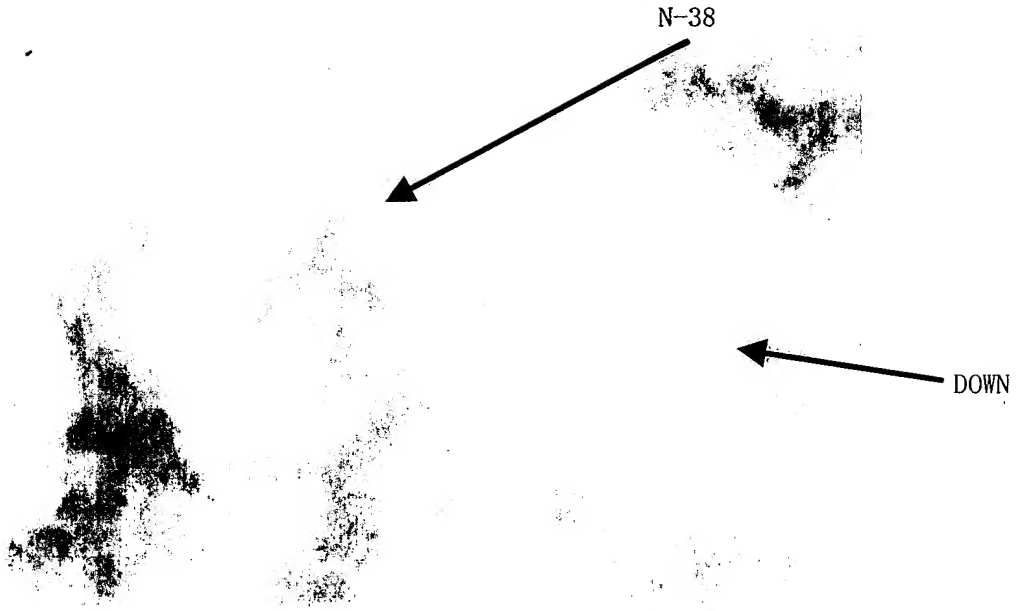
Left: Sample (i)
prepared under unconditioned environmen

Right: Sample (ii)
prepared under conditioned environment

Illustrations showing how the materials are mixed in the samples



*Sample (i)
N-38 and down, which were mixed under unconditioned environment, did not blend homogeneously.
N-38 and down were separate from each other.

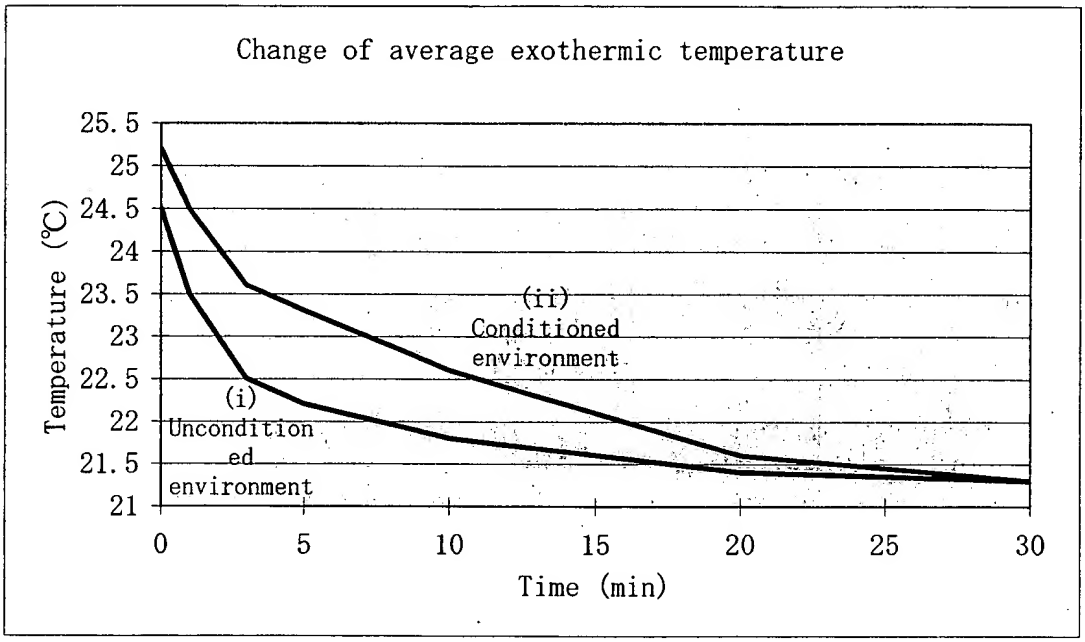


*Sample (ii)
N-38 and down, which were mixed under a conditioned environment (temperature: 25 deg. C, humidity 50%), blended homogeneously.
N-38 and down were hardly distinguishable from each other.

Change of average temperature

	0	1	3	5	10	20	30
Sample (i), poorly mixed	24.5	23.5	22.5	22.2	21.8	21.4	21.3
Sample (ii)*, well-mixed	25.2	24.5	23.6	23.3	22.6	21.6	21.3

*Sample (ii) was prepared under the environment disclosed in the present appl



Considerations

Sample (i), prepared under unconditioned environment, showed local rise of temperature because N-38 did not blend with down. In contrast, Sample (ii), prepared under conditioned environment, showed exothermic activity in its entirety. Besides, the average temperature of generated heat was higher. Since N-38 and down blended homogeneously in Sample (ii), the heat generated by N-38 was effectively kept by down.

Conclusion

When mixed in a low humidity environment (55% or lower), N-38 and down blend homogeneously, so that N-38 can exhibit its performance effectively.

STATEMENT

I, Katsuji SAKAI, a Member of the Board and a Factory Manager of HASETORA SPINNING CO., LTD. makes a following statement on blending of the BreathThermo fiber and other fibers.

We conventionally opened the BreathThermo fiber (N-38 fiber) and down in an average humidity of 70 % or higher. According to our local climate, this is a normal humidity atmosphere observed in a season for manufacturing winter wear made of these materials. However, conditions for opening these materials are currently controlled to a temperature of 25C° or lower and a humidity of 55% or lower, as instructed by Mizuno Corporation.

I hereby declare that the above statement is true and correct.

Date: April 15, 2004

Signature: 坂井勝治

Katsuji SAKAI